



SEP 25 2002

Artemis P. Simopoulos, M.D.
President, The Center for Genetics,
Nutrition and Health
2001 S Street, N.W.
Suite 530
Washington, DC 20009

Dear Dr. Simopoulos:

This letter is in response to your letter dated August 14, 2002, to Michael A. Adams, in which you support the health claim petition submitted by the California Walnut Commission.

We appreciate your interest in the issues raised in the health claim petition. We have forwarded your letter to the Dockets Management Branch (HFA-305) for inclusion in the administrative record under Docket No. 02P-0292. Your letter will be considered by the agency in its deliberations on what action to take on the California Walnut Commission's health claim petition.

Sincerely,

James E. Hoadley, Ph.D.
Team Leader for Nutrition Labeling and Programs
Division of Nutrition Science and Policy
Office of Nutritional Products, Labeling
and Dietary Supplements
Center for Food Safety
and Applied Nutrition

02P-0292

C16/ANS



The Center for Genetics, Nutrition and Health • Artemis P. Simopoulos, M.D., President

August 14, 2002

Michael A. Adams, PhD.

Acting Director, Division of Nutrition Science and Policy
Office of Nutritional Products, Labeling, & Dietary Supplements
Center for Food Safety and Applied Nutrition
Food and Drug Administration
Harvey W. Wiley Federal Building
5100 Paint Branch Parkway
College Park, MD 20740-3835

Re: Docket # 02P-0292

Diets Including Walnuts Can Reduce the Risk of Heart Disease

Dear Dr. Adams:

I am writing in support for the Health Claim Petition submitted by the California Walnut Commission on March 15, 2002, Docket # 02P-0292.

Recent research and clinical trials indicate that the addition of walnuts to a Mediterranean, Japanese, or Vegetarian diet decreases cholesterol levels, both total and low-density lipoprotein (LDL) cholesterol. Furthermore, walnuts decrease small dense LDL, which is the most atherogenic LDL. The studies also suggest that the addition of walnuts does not increase body weight, even if the caloric intake increased [reviewed in reference 1].

Walnuts have an exceptional composition and are very different from other tree nuts as follows:

1. Walnuts contain the highest amount of alpha-linolenic acid (ALA) than any other tree nut with a ratio of linoleic acid to alpha-linolenic acid (LA/ALA) of 4/1, precisely the exact ratio of the Lyon Heart Study [2]. Furthermore, the workshop on the "Role of plant-derived omega-3 fatty acids in human nutrition" recommended the ideal ratio of omega-6 to omega-3 fatty acids is 4 to 1 or less [3].

2. In a recent study that compared the total antioxidant content of nuts, seeds and dried fruits, walnuts contained >20 mmol per 100 grams, that is walnuts are second to dog rose in antioxidant content of all the plants analyzed. Hazelnuts, almonds and cashew nuts contained only low concentrations (between 0.23 and 0.49 mmol per 100 grams) [4].
3. The walnuts are high in arginine. Arginine increases the production of nitric oxide (NO) which has many beneficial effects, especially in dilating blood vessels by lowering endothelial derived relaxing factor (EDRF) [5].
4. ALA lowers blood pressure [6].

Although some of the other constituents of walnuts, i.e. high protein, potassium, fiber and vitamin E, could contribute in various ways to a healthy diet, the health claim could be based on the three most evident beneficial effects, namely (1) the cholesterol-lowering effect, particularly the lowering of small dense LDL, (2) the high antioxidant capacity and (3) the increase in nitric oxide.

Omega-3 fatty acids, including ALA, have hypolipidemic, antiarrhythmic, antithrombotic, and anti-inflammatory properties. Although emphasis has been put in lowering cholesterol to decrease the risk of heart disease, the antithrombotic, and especially the anti-inflammatory factors, in decreasing the risk of cardiovascular disease are being recognized. The acute phase reactant protein c-reactive protein (CRP) has emerged as an independent risk factor of coronary artery disease [7]. Madsen et al. showed a reverse correlation between CRP and DHA which may reflect an anti-inflammatory effect of DHA in patients with stable coronary artery disease and suggest a novel mechanism by which omega-3 fatty acids reduce the risk of coronary artery disease [8].

Although most studies have been done with fish oils [eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)], the alpha-linolenic acid (ALA) desaturates and elongates in the body to EPA and DHA. This conversion is better at a lower level of linoleic acid (LA) intake. For example, at a ratio of 4/1 of LA/ALA as is in the walnuts the conversion rate is 10/1 and 11 grams of ALA is equivalent to 1 gram of EPA. At a ratio of 8/1 of LA/ALA, the rate drops by 50% [reviewed in reference 9].

A health message for walnuts, taken either as a snack or incorporated into foods, would have enormous public health significance since it will enable the people to increase their omega-3 fatty acid intake in a convenient and enormously beneficial way. The Seven Countries Study showed that the population of Crete had the highest amount of ALA in their cholesteryl esters and the lowest rate of cardiovascular disease [10]. The people in Crete obtained the ALA from eating wild plants (purslane), walnuts, and snails [11]. The Lyon Heart Study based on a modified diet of Crete, had a ratio of LA/ALA of 4/1 [2]. Therefore, walnuts with a ratio of LA/ALA of 4/1 as part of a moderate fat diet rich in fruits and vegetables, similar to Crete and the Lyon Heart Study diets should lead to a reduction in risk for cardiovascular disease and be of great benefit in the health of the American public.

If you have any questions, I can be reached by telephone at (202) 462-5062, by telefax at (202) 462-5241 or by e-mail at cgnh@bellatlantic.net. I am enclosing my biographical sketch for your information.

With warmest personal regards.

Sincerely,



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References

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BIOGRAPHICAL SKETCH
Artemis P. Simopoulos, M.D.

Artemis P. Simopoulos, M.D. is the Founder and President of The Center for Genetics, Nutrition and Health, a nonprofit educational organization in Washington, D.C. A graduate of Barnard College, Columbia University, with a major in Chemistry, and a graduate of the Boston University School of Medicine, Dr. Simopoulos is certified by the American Board of Pediatrics and is a member of the American Academy of Pediatrics, the Society for Pediatric Research, the Endocrine Society, the American Pediatric Society, the American Institute of Nutrition, the American Society for Clinical Nutrition, the American College of Nutrition, the North American Association for the Study of Obesity, and The American Society of Human Genetics. She currently is a member of the Editorial Boards of the International Journal for Vitamin and Nutrition Research, the *Annals of Nutrition and Metabolism*, and *Food Reviews International*; consulting editor to the Journal of the American Medical Association (JAMA); and was contributing editor to *Nutrition Reviews* from 1979 to 1986. She is listed in eleven of the Who's Who Directories, including Who's Who in America, Who's Who in Science, Who's Who in Medicine and Healthcare, American Men and Women of Science, and the International Directory of Distinguished Leadership.

Dr. Simopoulos chaired the Nutrition Coordinating Committee at the National Institutes of Health (NIH) from 1978 to 1986. She is a pediatrician and endocrinologist with a long and distinguished career, whose research was originally focused on the nutritional, endocrine, and genetic aspects of growth and development in children and later on throughout the life cycle. Since 1984, her research has been on the evolutionary aspects of diet and the omega-6/omega-3 balance. In addition to her responsibilities at NIH, Dr. Simopoulos served as Consultant on Nutrition and Health to Ms. Ester Peterson, Special Assistant to The President for consumer Affairs, The White House, from 1978 to 1980. During that time she was a member of a number of White House delegations to the World Health Organization and the Food and Agriculture Organization. From 1978 to 1983 she was Cochairman and Executive Secretary of the Joint Subcommittee on Human Nutrition Research, Federal Coordinating Council Science, Engineering, and Technology, Office of Science and Technology Policy, Executive Office of The President, The White House, and a member of its successor, the Interagency Committee for Human Nutrition Research from 1983-1986. Dr. Simopoulos has been Editor of the Karger series *World Review of Nutrition and Dietetics* since 1989. She was a founding member of the International Society for the Study of Fatty Acids and Lipids (ISSFAL) in 1991, Secretary/Treasurer of ISSFAL from 1991 to 1998, and a member of the Editorial Board of the ISSFAL Newsletter from 1994 to 2000. She organized and chairs the International Union of Nutritional Sciences (IUNS) Committee on Genetics, Nutrition and Chronic Diseases since 1996. Dr. Simopoulos is the Organizer and Conference Cochair of the International Conferences on Nutrition and Fitness, held every four years in the Spring at the International Olympic Academy at Ancient Olympia, Greece, since the first conference in 1988.

Dr. Simopoulos has written extensively on genetic variation and nutrition; nutrition and fitness; the characteristics of obesity and body weight standards; evolutionary aspects of diet and fatty acids; and on the role of omega-3 fatty acids in health and disease and in growth and development. She has edited a number of books and journal supplements in addition to publishing over 250 scientific papers. She served as a consultant to the "Eat Well, Be Well" television series. She coauthored a book for the public entitled *Genetic Nutrition. Designing a Diet Based on Your Family Medical History* (Macmillan, 1993) and printed in paperback in 1995 with the new title *The Healing Diet*. Her latest book for the public *The Omega Plan* (hardcover, Harper Collins, 1998, USA; paperback, Hodder Headline Australia, 1998) is now in paperback in the United States with the title *The Omega Diet* (HarperCollins, 1999). It has been published in the U.K. as *The Aphrodite Diet*, in Holland as *Het Omega Plan*, and in China. Translations are in progress in Mexico, Belgium, France, Korea, Germany, Greece and Italy with other translations being considered worldwide. Her book *Mediterranean Diets* (Karger, Basel, 2000) has received worldwide attention and has led to a number of international conferences on this subject. Dr. Simopoulos is the recipient of numerous honors and awards, including the first Presidential Award for Studies in the Field of Obesity and Weight Control (Columbia University, USA), the 1991 Boston University School of Medicine Distinguished Alumna Award (USA), and the 1998 Gopalan Oration Award (India). In October 2001 Dr. Simopoulos received the FINESSe Seafood Health & Nutrition Research award from the National Fisheries Institute (USA).